

APPARATUS AND METHODS FOR TEXTURE MAPPING

Abstract

The invention provides texture mapping techniques that facilitate interactive
5 painting of a three-dimensional virtual surface by a user in object space, without
requiring global parameterization. The texture mapping techniques feature rendering
texture for a given virtual object using a plurality of composite textures, each formed by
blending collapsible texture layers. Texture coordinates in texture space are derived
using information determined at the time of surface mesh generation. The invention
10 features dynamic texture allocation and deallocation, allowing a user to interactively
modify the shape of a painted, three-dimensional model. Finally, the invention features
an architecture for combined graphical rendering and haptic rendering of a virtual object,
allowing a user to experience force feedback during the painting of the object in object
space.

15

20 2694641_1